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# A New Central African Species, *Cyperus vandervekenii* (Cyperaceae), from the Sources of the Nile in Rwanda

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**ABSTRACT.** *Cyperus vandervekenii* Reynders, Dhooge & Goetghebeur, from Rwanda, is fully described and illustrated. It can easily be distinguished from the related *Cyperus graciliculmis* Lye by its slender subquadrangular culms, single pseudolateral spikelets, and by the associated bract shorter than the spikelet.

**Key words:** Cyperaceae, *Cyperus*, Rwanda.

In his study of the Cyperaceae of Rwanda for the *Flore du Rwanda*, Maquet (1987: 446) considered the species *Cyperus* cf. *graciliculmis* Lye, as identified by Lye. *Cyperus graciliculmis* was originally described (Lye, 1983) as bearing two to three spikelets per inflorescence and is known only from a few collections from very steep mountain slopes of Mt. Mnyera (2075 m) in the Ukagura Mountains in Tanzania (Haines & Lye, 1983: 161). In a recent study of the Cyperaceae of Rwanda and Burundi (Reynders, 2004), taking into account the solitary spikelets and other features, we consider the specimens from Rwanda as a new species.

***Cyperus vandervekenii*** Reynders, Dhooge & Goetghebeur, sp. nov. TYPE: Rwanda. Gikongoro: Rugera, valley of the Birara, ca. 2300 m, 7 Sep. 1974, *P. Van der Veken 11146* (holotype, GENT; isotypes, BR, EA, K, M, MO, P, WAG). Figures 1, 2.

Herba perennis, caespitosa rhizomata gracilia rubra; culmi filiformes, erecti et subquadriquetri; folia redacta; spicula solitaria (rarissime 2 vel 3), pseudolateralis.

Perennial herb, forming dense tufts with red, slender rhizomes (Fig. 1A); roots dark brown to reddish brown; culms (2.5–)7–19(–35) × 0.01–0.04 cm, slender, erect, ribbed-rectangular with 6 to 8 rounded ribs (Fig. 1G, H), smooth. Leaves all basal and reduced to their sheaths; sheaths up to 4 cm long, red; blades reduced to 0.8–2(–3.4) mm, suddenly narrowing into a mucro; mucro (0.1–)0.3–1.3(–2.5) mm, red, margins glabrous. Inflorescence a single, pseudolateral and sessile spikelet, rarely 1 or 2

additional spikelets, 7–21 × (1.5–)4–9(–16) mm. Flowers 4 to 11(rarely to 21) per spikelet (Fig. 1B, 2A); involucre bracts 2; lower bract pseudoterminal, (1.3–)2–4(–5.3) × 0.4–1.4 mm; bract mucro 0.6–4 mm, scabrous near the apex; the second bract 0.8–1.8 × 0.2–0.8 mm, including a mucro 0.1–0.7(–1) mm long; rachilla 0.3–0.6 mm wide, persistent, narrowly winged; base of the spikelet with 1 small persistent glume-like bract that is half as long as the other glumes (Fig. 2A). Glumes 1.3–2.2 × 0.45–0.9 mm (measured on folded glume), distichous, ovate to nearly orbicular, rounded, green-red, glabrous, with a green 3-nerved midrib that starts between 1/3 and 1/2 of the glume, ending in a short mucro; mucro up to 0.1 mm, straight or slightly recurved; sometimes bearing 1 to 2 additional and hardly visible nerves at each side of the midrib (Fig. 1E); flowers bisexual (Fig. 1F); stamens 3; anthers 0.4–0.7 mm, with a short and spinulose appendage (Fig. 2B); filaments 0.8–2 × 0.1–0.15 mm; ovary 3-merous; style 0.1–0.8 mm, stigma branches 3, 0.5–1.2 mm. Achene 1–1.3 × 0.5–0.7 mm, obovate to elliptical, trigonous and often slightly compressed, light reddish brown to white, smooth (Fig. 1C, D; 2B–E); style base sometimes persisting on the nutlet as a short mucro.

The genus *Cyperus* L. s. str. comprises about 600 species worldwide. It can be recognized by its distichous spikelets with several to many fertile glumes, its flowers without perianth, and its inflorescence that usually consists of an anthela with conspicuous involucre bracts. The style is trifid, less often bifid, and the rachilla of the spikelet is persistent or not (Kükenthal, 1935–1936: 33).

*Cyperus vandervekenii* is characterized by the reduction of the leaf blades, the bracts, and the number of spikelets. This can also be found in a few other African species such as *Cyperus laevigatus* L., which, however, has a dorsivertrally compressed pistil. *Cyperus graciliculmis* from Tanzania is the most similar species, but differs both biogeographically and morphologically. The principal differences between the two species are given in Table 1.

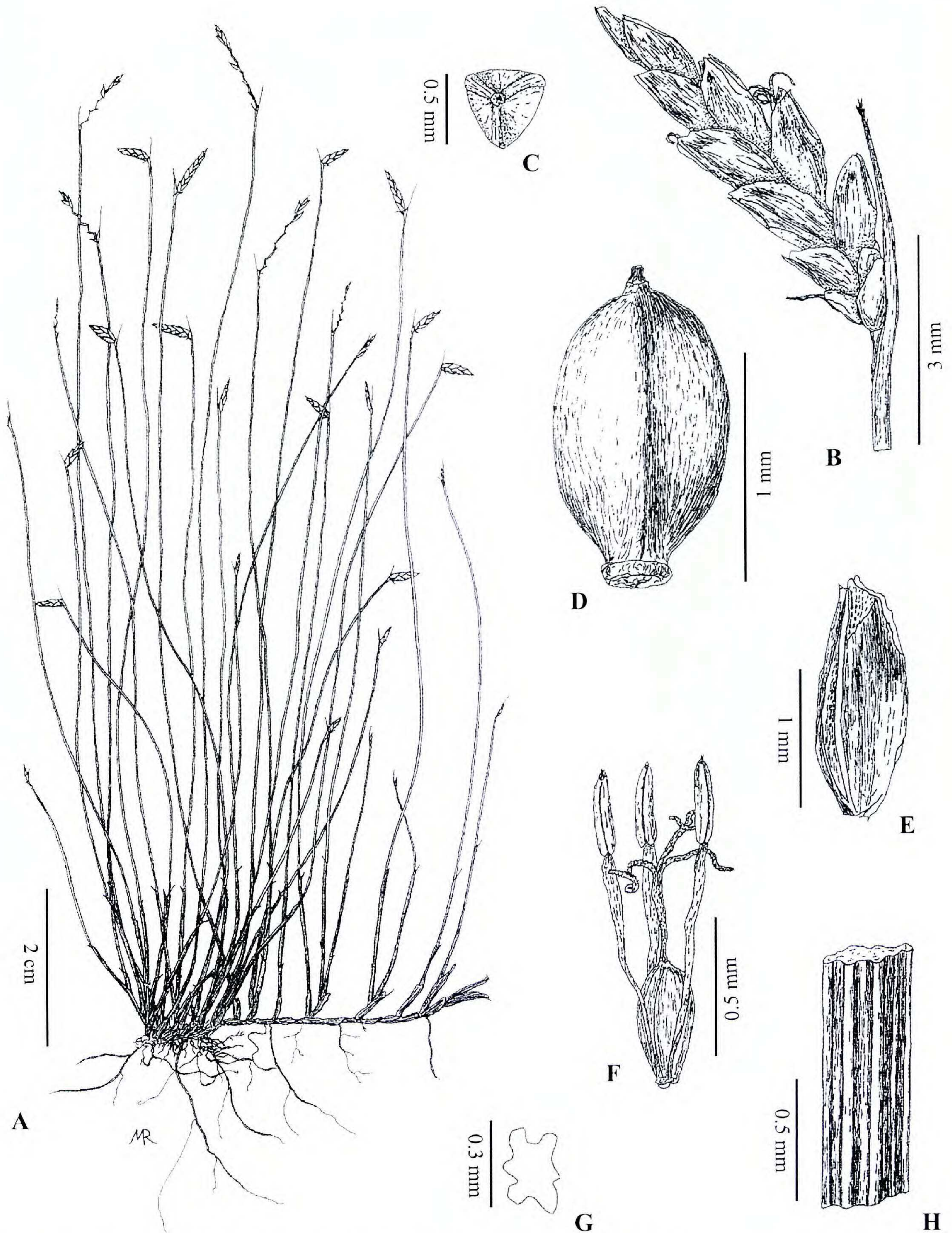


Figure 1. *Cyperus vandervekenii* Reynders, Dhooge & Goetghebeur. —A. Habit. —B. Inflorescence. —C. Fruit, upper view. —D. Fruit, lateral view. —E. Glume. —F. Flower. —G. Stem section. —H. Stem detail. (Drawn from the holotype, *Van der Veken 11146*, GENT, by M. Reynders.)

Due to the strong reduction of most parts of the plant, it is difficult to identify the section where *Cyperus vandervekenii* belongs; a molecular study could, however, bring more clarity.

*Cyperus vandervekenii* is a bog dweller known only from a few locations in the valley of the Birara River in Rugera and Rwasenkoko, east of the Congo–Nile ridge. It flourishes in *Erica* L. tussocks and *Sphagnum*

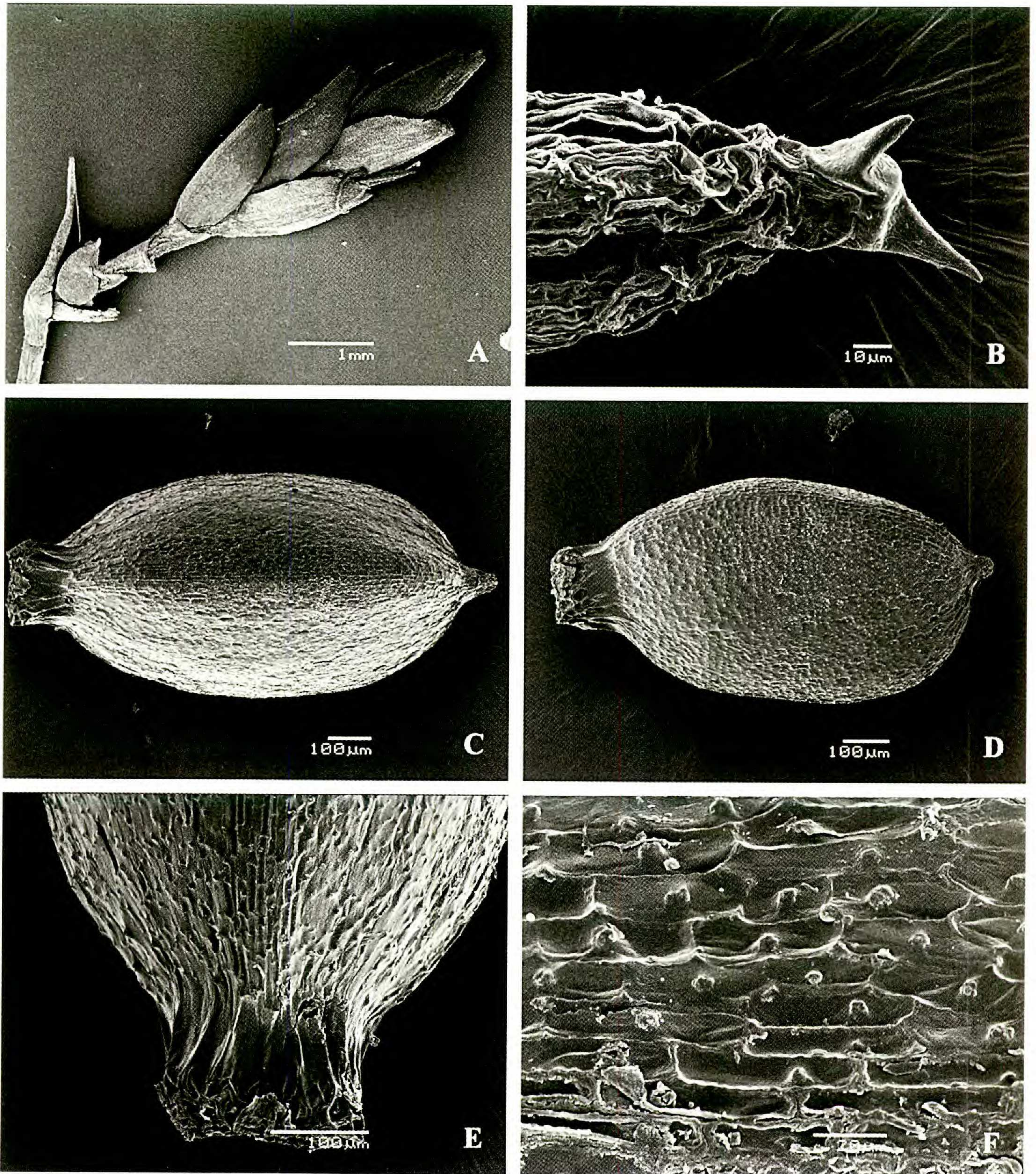


Figure 2. *Cyperus vandervekenii* Reynders, Dhooge & Goetghebeur, SEM images. —A. Inflorescence. —B. Anther top. —C. Symmetrical fruit. —D. Asymmetrical fruit. —E. Fruit base. —F. Fruit wall surface. (Van der Veken 11146, GENT.)

L. cushions. Several specimens have been collected from these locations. Maquet (1987: 446) cited the following specimens with the same characteristics as *Van der Veken 11146*: *Habyaremye 713*, *Reynders 153* and *226*, and *Van der Veken 11140*. After consulting the collector, the latter citation seems to be a typographical error of *Van der Veken 11146* in the “Flora of Rwanda.” The Habyaremye and Reynders collections could not be located in the BR herbarium for this study. It should also be remarked that the

collector “Reynders” is not the same person as the first author.

We are very pleased to be able to dedicate this delicately beautiful new species to its type collector, P. Van der Veken. He is one of the founding fathers of the modern systematic approach in cyperology. His seminal work on the embryology of the Cyperaceae has led to a much better understanding of generic affinities and tribal delimitations within the family (Van der Veken, 1964, 1965).

Table 1. Morphological comparison of *Cyperus vandervekenii* and *C. graciliculmis*.

	<i>Cyperus vandervekenii</i>	<i>Cyperus graciliculmis</i>
Culm		
dimensions, cm	(2.5–)7–19(–35) × 0.01–0.04	20–50 × 0.03–0.06
cross section	subquadrangular	triangular or angular
Leaf		
color	reddish brown	green or brown
blade	only a long mucro is present, the rest of the leaf blade is absent	leaf blade short but not entirely reduced to only a mucro
scabrid	not scabrid	scabrid
Inflorescence		
no. of spikelets	1 sessile spikelet, rarely 1 or 2 additional sessile spikelets	2 or 3 sessile spikelets, rarely 1 additional stalked spikelet
involucral bracts	2, lower bract (0.13–0.53 cm), shorter than spikelets	2 or 3, lower bract (2–5 cm), longer than spikelets
Habitat	bogs	steep mountain slopes
Location	Birara valley, Rwanda	Top of Mt. Mnyera, Tanzania

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